POPULAR Computing WEEKLY

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Vol 5 No 5

THIS WEEK

Your ideal micro competition results – p8

ST software series continues part 2 on p 14

Atari and CBM go for education

ATARI and Commodore have both announced promotions into the educational market, Atari with the 520ST and Commodore with the 128D and Amiga. Both exhibited at last week's High Technology and Computers in Education exhibition.

Atari has announced large discounts for the 520ST for schools and colleges. The micro, with a 500K disc drive, hi-res monochrome monitor and mouse will cost £499 (ex-VAT). This represents a cut of £150 on the normal price. The version with a colour monitor will cost £699, £130 off normal price.

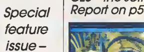
Also included in the packages are *1st Word, DB Mas-*

Commodore is not offering discounts on either machine. "We are going down the bundling route, so we are being careful not to hack prices," said a Commodore spokesman. "Discounting is a possibility but there are no such plans at the moment."

Commodore is hoping that the 128D, in its configuration with disc drive and monochrome monitor at £499 – the same as Atari is offering – and its ability to run CP/M will prove attractive to schools without any incentives.

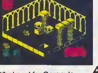
For the Amiga, however, the company is developing a

continued on page 4 ▶



Special feature issue – Arcade Adventures

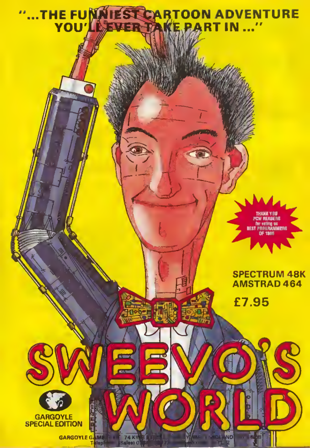
CES – the software Report on p5



What next for Gargoyle Games? – p12



INSIDE) SPECIAL OFFER WEEK FOUR – SEE PAGES 6 AND 25)


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CONTENTS

Vol 5 No 5

EDITORIAL

All the major micro manufacturers are now actively pushing their machines towards the educational market Amstrad, through Northern Computers, Sinclair, with the QL going to universities, Atari, with hefty discounts on the 520ST, Commodore, hoping the 128D will do rather better than the 64 did, and the Amiga still looking for its market and of course Acorn, which has never really done anything else

Whether any of the first four can really hope to take any more than a very small share of the educational cake is doubtful Acorn and Research Machines have between them, almost a monopoly, and Acorn's Master Series will be attractive to educationalists already using and happy with the old BBC technology

Both Atari and Acorn – with the Master 512 – see the route forward as progress into 16-bit technology and Atari's discounts make the ST package a very attractive proposition especially when compared to prices for the Apple Macintosh, which has also been promoted in the higher education field. Commodore is hedging its bets by pushing both an 8-bit and a 16-bit machine though an announcement that it is interested in educational prospects and a stand at an educational show do not a great presence in schools and colleges make

If significant number of establishments do decide to go for 16-bit machines they may well go for Acorn's Master 512 – even if it is twice the price of the 520ST A large number of LEAs have been working successfully with Acorn for the last three or so years, and may well stay with them

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Computer Trade Association Magazine of the Year

CBM starts payback negotiations with DTI

COMMODORE is to start negotiations this week with the Department of Trade and Industry over grants it received from the DTI for setting up its plant in Corby

When Commodore moved to Corby, it was given a £2 million grant, because of Corby's status as a steel-closure town. During the first quarter of 1984/5, it received a further £197,000 as a regional development grant

The negotiations will sort out whether the micro manufacturer will have pay back any of the money, and if so, how much

"There is also a £2 million loan from the European Coal and Steel Federation – that is a loan and must be paid back in full," said a Commodore spokesman.

The condition under which Commodore took the grants have not been made public, but if the company transfers equipment bought with the regional development payment, or ceases to use the plant for its original purpose, this could be grounds for repayment.

"It is not fair for the rights and wrongs of the situation to be debated before Commodore has had a chance to start negotiations," the spokesman continued "The conditions vary from company to company."

Commodore invested a total of £30 million in the Corby plant – £20 million of which was spent setting up the assembly facility The company has stressed that the factory will not close, but will continue to be used, albeit not for assembling micros

Einstein takes on Spectrum

TATUNG has announced the launch of a Spectrum emulator for the Einstein.

The Speculator has been manufactured by Syntaxsoft, which also developed the device for the Memotech.

It consists of a printed circuit board and software on cassette The circuit board connects to the Tatung 'pipe', and enables a cassette recorder to be used with the computer

The software comprises twenty games and Tatung intends to release further cassettes for use with the Speculator The first cassette includes *The Hobbit*, *Tornado Low Level*, *Daley Thompson's Decathlon* and *Starion*.

Price of the Einstein Speculator – circuit board plus software – will be £45, and it will be available towards the end of February

CRL enhances Tau Ceti

CRL's space quest game, *Tau Ceti*, has been converted to the Amstrad CPC machines. A cassette version at £9 95 is now available, and CRL is also working on an enhanced disc version, *Tau Ceti Plus*, which will cost £14 95

Details from CRL, 9 Kings Yard, Carpenters Road, London E15 (01-533 2918)

Beyond manager leaves BT

BEYOND Software's managing director, Bill Delaney, has left the company

He will be setting up his own projects within the computer software industry, but he declined to comment specifically on his future employment

Bill Delaney

"When Beyond was taken over by British Telecom, we agreed that I would stay through the transitional period," he said.

Beyond will now be headed by Rainbird chief, Tony Rainbird, on a caretaker basis

Atari and CBM in education

◀ continued from page 1

file transfer package, enabling files from the Commodore 8000 series, which has previously had some educational success, to be run on the Amiga and vice versa. Commodore is still keeping quiet about the final pricing and configuration of the Amiga

As for Atari, it claims the ST is already selling very well in educational markets and the promotion, which runs until March 31, can only help Atari UK marketing manager Rob Harding said: "With the advanced technology in the 520ST now available to educationalists at these prices we know that the response will be overwhelming"

However, whether it will be enough to justify Harding's claim that the ST will become "the standard educational tool" is open to doubt. Many schools have invested large amounts in Acorn and Research Machines equipment and may be reluctant to make a wholesale move to a newcomer

Interested parties can contact Atari on 0753-33344 and ask for the educational desk. Orders, it should be noted, must be on official stationery so school secretaries should keep their desks locked.

Magazine Maker – publishing on the BBC

AMS and Watford Electronics, two of the leading supporters of the BBC Micro, have announced a desktop publishing system that incorporates AMS's *Pagemaker* software, and Watford's video digitiser

The package, called *Magazine Maker*, allows you to capture an image from video camera, video recorder or television and create a BBC graphics screen. This can then be incorporated within *AMS Pagemaker* to illustrate printed documents.

You can run text around the illustrated in different formats and typefaces, and the graphic itself can be cropped and scaled to different sizes The whole page can then be printed out on a range of printers

This package follows a number of recently released desktop publishing aids, Commodore is promoting the Amiga in this area, and Mirrorsoft has released *Fleet Street Editor*, for BBC, and ST and Amiga later this year

Magazine Maker costs £105 and consists of *AMS Pagemaker* software, the video digitiser interface and controlling Rom It is available now from Watford Electronics on 0923-37774.

Sinclair cuts at Microfair

HEAVY discounts on the Sinclair QL and Spectrum Plus will be available at the ZX Microfair on February 1

Sinclair will be selling the Spectrum – without any bundles software – for £97 50, and the QL at £159.95 at the show. Discounts of between 10% and 20% will also be available on QL software

A Sinclair spokeswoman asserted that this was a 'one-off' offer only and not a permanent price change

The ZX Microfair takes place at the Royal Horticultural Hall, near Victoria station in London. Doors are open between 10 00am and 6 00pm.

CES Show Report

The 1986 Winter Consumer Electronics Show held in Las Vegas two weeks ago proved to be a showcase for some of the most exciting entertainment software ever seen.

These are programs for the new generations of 68000-based 16-bit micros, Atari's ST and Commodore's Amiga.

The main companies working on titles for these machines are Electronic Arts, Activision, Sub-Logic and, curiously enough, the UK's own Rainbird. Fifty-six companies now have finished ST programs.

The software is graphically quite startling and reflects the quantum leap in computing power and memory capacity offered by the ST and Amiga. Although the programs are expensive now – typically around £30 – expect to see prices fall.

The software speaks for itself, so feast your eyes on these awesome bytes!

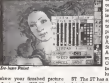
Electronic Arts

The leader in Amiga software, having spent $600,000 (£400,000) on developing material for the machine. Six titles are out already, with another four to follow by March. *Deluxe Paint* (a chunky $99 95 – about £75) is probably the most impressive program on either machine so far. It is a beautifully programmed graphics package offering



Flight Simulator

unparallelled facilities. You can even distort flex and



De-luxe Paint

skew your finished picture. *Arctic Fox* ($39 95 – about £27) is the follow up to *Sky Fox*: a winner with a choice of scenarios and solid 3D animation.

One-on-One (also $39 95) is a conversion of the basketball game of the same name on the C64.

The graphics maybe don't look like that much of an advance, but the sound is incredible – real crowd and referee's speech, sampled from a Boston game audience. Very impressive.

Titles in development include a complex adventure with cartoon-quality animation and speech, *Return to Atlantis* ($39 95), and two more utilities *Deluxe Print* and *Deluxe Video* (both $99 95). All titles for the Amiga.

Activision

A mix of titles across both the ST and Amiga. *Borrowed Time* is a sophisticated graphics adventure set in 1934. You play Sam Harlow, a private eye with a contract out on you. Excellent graphics featuring some animation. Looks particularly good on the Amiga. *Music Studio*, Activision's successful C64 utility, has been enhanced for the ST. The ST has a built-in Midi interface so the program can be easily interfaced to a synthesiser, like the Casio CZ101.

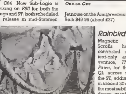
Another C64 program, *Little Computer People* is being converted for the Amiga – early versions feature better graphics and more artificial intelligence.

The Landmark hotel

Activision also has *Hacker* for both machines.

Sub-Logic

Best known for its top-selling *Flight Simulator* program on the C64. Now Sub-Logic is working on *FSII* for both the Amiga and ST both scheduled for release in mid-Summer.



The Pawn

The Amiga version makes good use of the micro's quick hardware fill routine to produce some incredibly fast solid 3D scrolling effects. Also features sampled 747 Jumbo Jetnoise on the Amiga version. Both $49 95 (about £37)

One-on-One

Rainbird

Magnetic Scrolls has converted its text-only adventure, *The Pawn*, for the QL across to the ST, adding in around 30 of the most subtly drawn graphics yet seen on either the ST or Amiga along the way. Features arguably the best English language interpreter. The program is cheap too at $24 95 (£19)

David Kelly

Letters

No reply

I am writing to warn readers about Amsclub, the independent user club for owners of Amstrad machines

I wrote to them on November 15, 1985, enclosing a cheque for £5, to join the club and to receive the "membership kit" and tape magazine which it advertised. The cheque was cashed on November 22 and, when I had heard nothing by December 8, I wrote to them again.

I have still heard nothing from them, in spite of writing again on January 6, informing them that I would write to you if I had not received a satisfactory reply in 10 days

AP Coutanche
Bristol

Here is the fourth coupon to add to your card. The final coupon appears next week. If you don't have the card, turn to page 35 for details of a 'consolation' offer

COUPON 4

Extended access

As published (Vol 5 Nos 3 & 4) my article on disc random access for the Amstrad only works on the 464 at the moment. To make the program compatible with Basic 1.1 the following line should be added to the Basic Loader program,

```
75 POKE &9086 &3E:POKE &9088 &88:POKE &908C &CB
```

Brian Cadge
Birmingham

Robin of Sherlock

Congratulations to G Sarkar of Wanstead in East London who wins a Robin Hood weekend for two in our *Robin of Sherlock* competition, for his Chandleresque diary entry. Twenty five runners up will all receive copies of the game

From the outside

I, known as the Outsider, have reached "Elite" status on the spectrum version of *Elite*. Without any cheats, pokes, or tips, I have battled through to this momentous achievement. If you will permit me, I would like to say a few words to one of your correspondents on the matter

James Carter, docking is the single most important manoeuvre in the game. If you cannot dock you shouldn't be in space.

The following procedure is far better than hacking: take slaves from Lave to the planet to the right, Zaonce, I think its name is. There is a planet nearby which has an opposite economy and trade between it and Zaonce. This does of course, involve docking, but only a few trips should be required before a docking computer can be bought.

When docking, the most important thing to do is to get your cross as near to the middle of the port as possible. Getting exactly opposite the station makes matters easier. Approach the station until you are very, but not dangerously, close and then try and match rotation with the station

Make sure your cross is as close as possible to the centre off the port and then approach at minimum speed, still trying to match your rotation with that of the station.

Gavin Sneddon
London N16

Choose Your Ideal Micro

Here are the results of our Choose Your Ideal Micro questionnaire (Popular Computing Weekly, November 21) in which you had to tell us what would go into the ideal computer you would like to buy.

First thank you for your response – we had hundreds of replies. Since they started coming in, we have been feverishly analysing the data on your computer specifications and you can read here the message that those replies give to the computer manufacturers. It should also give you an idea of what people are looking for in computers now, and tell you the sort of machines that will and will not receive popular support in 1986

If we just look first at the features in the questionnaire and select those wanted by *more* than *half* of our entrants the new machine would look like this

Processor	Z80
Ram	128K
Operating System	Manufacture's own
Language in Rom	Basic
Data Storage Device	Single disc drive
Peripherals	Joystick and mouse
Display	Colour monitor
Keyboard	Professional quality
Interfaces	Centronics and RS232 built-in
Graphics capability	Hi res with 80 column text
Printer	Near letter quality dot matrix

Obviously an over simplification like that produces a specification that seems odd, and it shows that there is not one perfect combination which the manufacturers have simply failed to think of But it does show what were the most popular features

Any machine that goes better on any of these, or features something different is offering something more than everyone wants at this moment. That does not mean it will not succeed rather that the majority are more interested in good colour graphics, fast storage, a good size memory and the option to communicate with other computers It also suggests that the introduction of 16-bit processors will be carried mainly on the back of better graphics – and that means software that uses them

1 Processor

The Z80 was still the firm favourite with 43% of our respondents This is perhaps surprising when there is so much written about how archaic it is But it does seem that the 68000 will soon displace the Z80 one in three people had it as the processor of first choice and it was the most popular second processor

The 6502 is somewhat out of the race straggling behind with just under one person in six choosing it for their ideal computer Only one in 20 had any use for it as a second processor

What was interesting is the relatively low interest in the 8086/8088 processors. Less than one in 12 of our ideal computers had this processor If we had asked you the same question in a few months' time when a host of cheap IBM compatibles using this processor could well be on the market, would this number have been higher?

2 Rom

We gave a wide range of choice of memory sizes for your ideal computer and your replies showed that over 80% chose 128K as standard and less than one in ten were satisfied with 64K A significant number wanted a lot more memory, with nearly one in three ideals having 256K or more

3 Operating System

A staggering 40% were happy to leave this to the manufacturer However it turned out that 81% of these also said they would use their machine for playing games, which may explain this, and the later figures on the most popular operating system (see Data Storage below) for those who wanted disc drives bears this suggestion out In view of the popularity of the Z80 it was not so surprising to find that one in three of your machines would include CP/M Although just over one in four wanted a Gem like operating system, only one computer in 12 offered PCDOS or PCDOS emulation, and only 38% of these had an 8086 processor Do our comments about the 8086 apply here too?

Only one person in eight gave their computer two operating systems, here over half of these were CP/M and about a third Gem-like operating systems

Mice are moving in.

4 Languages

Now this showed something which few machines on the market really offer One in three people want their machine to come with two languages built in and more than one in six want three The vast majority still want Basic (81%) but the more popular second choice was Pascal although Logo and Forth followed not far behind, with C and Assembler next in line What is obvious is that there is a lot of interest in languages other than Basic, and that a large number want to have more than one language to choose from already in Rom

A "Top Ten" of languages chosen came out like this

1 Basic	81%
2 Pascal	13%
3 Logo	8%
4 Forth	8.2%
5 C	8%
6 Assembler	7.6%
7 Cobol	4%
8 Lisp	3%
9 Fortran	2.7%
10 Prolog	2%

Artificial Intelligence languages like Lisp and Prolog still have not made it into the same sort of position as Pascal but the presence of both of them indicates they are up and coming

5 Multi-tasking

A feature which can only be found on true 16-bit computers proved to be very important 35% of your micros would allow you to run more than one program at once It does seem that the requirements of multi-tasking are still not quite understood – only around two in three of those who chose it also had a 16-bit processor Nevertheless, the result shows that the ability to run more than one program at once is in demand Multi-tasking is something that manufacturers seem to be prepared to pay lip service to, but it would be interesting to find out what sort of programs it is you want to be running together

6 Sound

Two thirds of you required three channel stereo and a further one in four wanted eight channels, which means that nine out ten people expect their computer to be able to make reasonable music There were of course eccentrics, like one who wrote very clearly on his reply "Absolutely no sound at all". There can be no doubt that the ability to produce music on your machine is important, although one in six – a significant minority – wanted some sort of music keyboard So not all of you expect to do a lot of music-making on your micro, but many want to have some music facility Not surprisingly 82% of those who wanted some sort of music keyboard also wanted eight channel stereo So if you were aiming at this market you would be foolish to ignore that



Add on keyboards – music to your ears.

7 Data Storage

This proved to be another area in which your machines were ahead of most manufacturers. Nearly one third of you saw two disc drives as essential. Overall four out of five of your computers came with at least one disc drive as part of the package (Amstrad has obviously hit this nail right on the head), and one in six had a built-in cassette (Amstrad again).

A fair number of systems with at least one disc drive opted for more than one operating system. The operating system league table amongst these showed manufacturer's own still just ahead at 38% of this group, but CP/M and a Gem like operating system followed closely at 35% and 30% respectively.

Only 3% were happy to stay with a "stringy floppy" storage device. The same number wanted one of the new CDRom drives in their system. Nearly two thirds of the systems that had CDRom drive relied on this alone for data storage – a bit optimistic at the moment but quite possible in the future.

Most of your systems only had one type of storage device (93%) and as we have said most of these were disc drives, which suggests that there is a widespread demand for reliable devices offering fast storage.

8 Peripherals

Not surprisingly the joystick was the most common of these (57%) although it was surprising to find how many wanted a mouse (52%). Nearly half of those who wanted a joystick also wanted a mouse, so this does not mean no one is using the keyboard any more. However, it seems to encourage the trend to icon driven software.

A light pen was next most important amongst the peripherals (23%) and not far behind at 19% was a graphics tablet. As mentioned above 17% would have a music keyboard of some kind in the box with their computer.

9 Display

More support for the Amstrad philosophy came from your replies to this section. An overwhelming 65% insisted on a colour monitor as standard and 53% of these were prepared to pay at most £999 for their system, which suggests they were taking the exercise seriously. It was not just a case of wishful thinking.

Altogether four out of five wanted some sort of monitor in their ideal computer (16% wanted a monochrome monitor, 65% colour), and only one person in six was happy to carry on using their existing television.

Less than 1% felt it was necessary to have two display devices.

10 Keyboard

It was not very surprising to find 97% of your machines had a professional keyboard. Let's hope no more computer makers waste their efforts on anything else from now on!

11 Communications

Again your replies show that your thinking is ahead of the computer manufacturers here. Seven out eight specified some sort of way of communicating with the outside world should be part of your computer from the beginning. An amazing one third of all your computers included a modem – so much for computing being a solitary occupation!

12 Graphics

The Amiga should receive some support if only for its graphics capabilities, according to your enthusiasm for a hi-res graphics chip with a "Blitter" type chip. Two out of five of your machines would be able to handle breathtaking graphics, and overall half would at least have a hi-res graphics capability.

A fraction of the whole, one in 20, were satisfied with only a low res display being possible on their computer. The message from this seems to be that there is general excitement about the increased graphics power that the new generation of machines like the Amiga and to an extent the Atari ST range can offer.

This could be a potential trap for anyone who thinks they can just bring out a cheap IBM compatible without bothering to ensure it satisfies this demand for good hi-res graphics.

Printer

There was not quite the sort of massive preference for any particular type of printer of the kind we found for a professional keyboard, but four out of five systems had some sort of printer attached. One out of five of these was a printer plotter, which suggests (when you consider how few of these had any other printer) that there is a definite demand for printers that will produce good graphics.

Half of the printers that were chosen were NLQ dot matrix. Only 3% wanted any sort of daisy wheel printer. So it is clear that the majority want a reasonable print quality and are not satisfied with cheap dot matrix with its lack of proper "descenders" but do not need daisy wheel finish.

It seems from all this that what most people want from their printer is graphics and text capability. So far, printer plotters cannot really cope with much text and there is a limit to the graphics you can do on a dot matrix. In my view this makes encouraging reading for those who are hoping to bring out cheap laser printers soon. Laser printers at the right price would take the bottom of the market for dot matrix and daisy wheel printers.

14 Computers

Almost everyone who sent in a form already had a computer, 96% in fact. Far fewer used two machines (21%).

Surprise, surprise, the Spectrum led the field (36% of our replies). Only one in five of your answers admitted to two timing (having used more than one machine). But only one in five Spectrum owners did not have another machine, the other machines they had were evenly divided amongst Amstrad, BBC, Commodore and QL. But this suggests that there is still a high degree of machine loyalty, which is a lesson for manufacturers by itself.

The Commodore range (64/128) held second place, with 20% using one.

The failure of the QL was borne out by the analysis of your replies – only 7% had one or had used one! Perhaps if Sinclair had done more pre-launch research about those microdrives they would have dropped them in favour of a built-in cassette or disc drive. The fact that 17% of our respondents had an Amstrad seems to bear this out. But Amstrad were still in third place – just.

The BBC trailed behind the Amstrad

continued on page 10▶

Choose Your Ideal Micro

machines – only 15% of you used one

There was an incredible diversity of machines used amongst a small minority of one in 20 who replied to us. This is what one would expect when the market has been crowded with so many different machines. But there were more people who were still using a ZX 80 or 81, than Atari or MSX!

15 What you wanted to use your computer for

Games were top of the list on 45% of your forms – this corresponds well with the number of your machines that included powerful graphics capacities. Interestingly 38% had music as number one use for their machine (but only one in three systems had a music keyboard as part of their system which is puzzling)

But do not assume that games is all that people wanted to do – over half would use their computers for operating a

Unreal keyboards (like this) are out.

small business and 64% wanted to do some word processing. Something like four out of five of you said you would be doing one or the other on your computer

Games playing may well have been the most popular use that first came to mind. However, at least 80% would do some programming with their machine which is good news for those who have tried to explain that computers are more than games machines

The order of popularity of uses was

1 Programming
2 Games
3 Wordprocessing
4 Keeping records
5 Graphics
6 Small business operations
7 Household management

16 How much you were prepared to pay for your ideal computer

Most people (54%) would not pay as much as £500 and half of that group would not pay as much as £250. This suggests the Amiga will have some work to do if the market as a whole feels the same way, but Commodore can take heart that one in five of our respondents would be prepared to pay more than £1000. A further one in five would be prepared to pay between £750 and £999 – good news for Atari.

It should be said that many people got rather carried away with building up a system and were not prepared to pay quite as much when asked to name a top price

The bulk of your systems actually worked out as costing between £400 and £900 which makes the prices of some of the new machines coming out look fairly realistic

THE WINNER!

The winner of the competition to choose your ideal micro is Martin Harris, of London. Martin will be receiving a monochrome Amstrad CPC 6128 for his phrase: *The most important feature of my new micro is . . . "It'saromreadingram writingnumbercrunching gameplayingfasttalkingprinter plottingsynthsounddiskey clickingmemorymappingmulti colour-system."*

Honourable mentions go to S M Foster of Stourbridge, West Midlands for . . "the person using it", S I Morgan of Wolverhampton, for . . "the ability to make good coffee", David Sejrup of Merseyside, for . . . "the plug", and Tim Deans of Middlesbrough, for . . . "it's colour compatible with my wallpaper and duvet covers".

We received replies from people aged seven to 70. A fair number were in the 14 to 18 age range but the majority were aged between 22 and 40

We hope you find the results of this research interesting, and useful if you are thinking of buying in 1986. Let us hope the manufacturers will also take note of what you want.

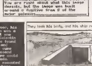
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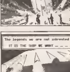
The Rogue Program












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Magickal mystery tour

Graham Taylor sees the future at Gargoyle Games

The title of the game is *Heavy On The Magick*. It was a title of the game long before Gargoyle Games had any clear conception of what sort of game it might be.

Now the details of the programs are still a little cloudy though the title is unchanged and the plans for the box illustrations and advertising material are finalised. The game will be ready in late February – Gargoyle is confident.

Gargoyle has a considerable reputation for producing arcade adventures where the space between those two disparate concepts, 'arcade' and 'adventure', is more effectively shrunk than in almost all others. Gargoyle also has a reputation for providing games with an aura of historical and mythological authenticity. So *Heavy on the Magick* has a great burden to be, well, very good



indeed. Greg Follis and Roy Carter are the men responsible.

Says Greg, "I almost always begin with a title and that alone sparks ideas. From those associations I start to read books – anything associated with those ideas – and start noting down points of interest. Never plot though."

In the case of *Heavy on the Magick* the main reference works were all tomes related to 'real' magic like *The Sacred Book of Abra Melin the Magi*, various works by John Dee and "some Golden Dawn stuff".

What to do with a collection of information on spells? It soon became clear that this tied in neatly within another plan that Greg and Roy had been developing – a game which would recreate authentically on computer the flavour of Dungeons and Dragons, the cult role playing game.

"Some of the choices affecting the development of any new title have to be economic," explained Greg. "We felt that nobody had yet created an adventure game which really recreated the traditional fantasy adventures and would attract D&Ders who are ordinarily a bit sniffy about computer adventures. At the same time we wanted to give people new to the idea a real sense of the excitement and fantasy of the games without the need for several players and all the paraphernalia.

"In short, we wanted to create a game in an authentic D&D format that would also be technically very user friendly. Anyway, apart from economic considerations Roy and I are fond of that sort of game."

It soon became clear that the new game would need to feature some techniques which Gargoyle had not attempted before, and that it would be a definite departure from the *Tir Na Nog, Dun Darach, Marsport* tradition. "We needed a great deal of flexibility to keep people interested – the key was a central character who could respond to your commands and move around freely – in the other games it was the background that scrolled," said Greg.

Among the new techniques the game will feature is a completely new graphics system. "We've found a way of getting about four times the amount of graphics for the same amount of memory, by using a new masking system. We can now draw an image very small and magnify it when it is placed on the screen. Using this we plan to have a central character ten character squares high which is about 2½ inches, and everything else will be similarly large.

"There will be some loss of detail when compared with characters in early games but the trade off in terms of size and variety of graphics should be worth it."

The graphics will feature in the top two thirds of the screen. Each display will feature a room in a maze of dungeons and within the room there will be various objects. The idea is that the central character will actually 'perform' visually any command you can give it. Greg explains, "Although the command system will be single key presses, such as *m* for move, we intend to make the command interpreter very intelligent.

"For example, if you issue an *open door* command the interpreter will judge the door closest to your character and open that. We want to make the command system simple enough for an extreme novice to use it, but compatible with quite complex ideas for people who want to play the game at a higher level.

"There was something else we planned at a very early stage – we wanted to get away from puzzles and move into problems as the main game obstacle."

The distinction Greg makes between 'puzzle' games and 'problem' games is an interesting one. "A puzzle game is set in a landscape and there is no sequential aspect to the puzzles – each one occurs at a specific point in the game and in a sense can be abstracted from it – you could present some of the puzzles from *Dun Darach* on a piece of paper, for example. With problems you need to react to the circumstances, finding the right spell for a monster or whatever. They develop logically and admit a variety of solutions. It's problems that we're after in *Magick*."

Having decided that much about the game, the programming begins – there is still no plot. Roy Carter starts to work on the complex graphic routines and as programming problems occur he and Greg discuss them. "That's one of the reasons the plot comes in late, since it has to be modified by what is technically possible and it's a mistake to fix it too early."

Given the title and the background

material filtering through Greg's imagination, one aspect of the game has also become clear – the importance of spells in the game play "Combat features heavily in D&D and it must feature heavily in *Magick* – spells give us a means of combat that will be visually interesting, but also in keeping with the style of the game."

The spells are also an example of how plot is modified by technique "I began with a list of around 20 classic spells – the kind of things found in most occult works, but I found many of them would be impossible to implement or illustrate visually, so I am currently working on a list of ten or so spells we can implement

Already promised for the game are invisibility (whatever you hit disappears), levitation (lifts thing into the air), animation (to make inanimate objects 'live'. "I'm looking forward to playing around with that one," says Greg "We could have chairs that walk!"), and enlarge or shrink (self explanatory)

"The important thing should be that spells can be used freely even though you may do completely the wrong thing I like the idea that the spells are potentially dangerous and you may accidentally change, say, a mouse into something vicious. I don't like the idea of just 'picking up' spells which are lying around either, I prefer the concept of forming them. For example, you may have a fairly low power ability to transform objects which is greatly improved if you can find an effigy of the thing you are trying to attack"



If all this sounds a little heavy, Greg is keen to stress the humour with which the themes will be treated "The hero will be an amateur, a gentleman sorcerer who, as a result of past rivalry with another sorcerer finds himself dumped in the middle of a large dungeon – and of course he wants to get out That amateur aspect is something that will be exploited in the game with some potentially chaotic results."

Greg has been sketching ideas for backgrounds and characters and these are passed to the people who are to create box artwork and adverts for the game This artwork is now finished as are all the decisions about box size

"I think you can describe the eventual look of game we're attempting as Gothic Anglo Saxon – true to the classic D&D style Put another way I think it may look a bit like *Black Adder I*."

There are a number of key D&D elements that will feature in *Magick*. Primarily a complex relationship between luck and judgement "I am working with a sort of decision flowchart with lots of possible choices in what will happen in the game – the idea is to 'weight' possible outcomes according to various factors like skill, stamina and luck – exactly the kind of thing the Dungeon Master does in D&D



"The current thinking is that you will begin with random values (within a certain range), that you may allot freely between the three elements of skill, stamina and luck The ratings for these elements will have some bearing on events in the game, particularly combat. The ratings will also develop as you play"

"The idea is that your character will develop in power through the game That gives us the chance to extend the program by bringing out new scenarios on a separate tape later on – you will be able to load your character into the new scenarios and thus progress through more and more difficult challenges."

There are plans, too, for a multi-player version of the game, but Greg doubts that this will be present in *Heavy on the Magick*.

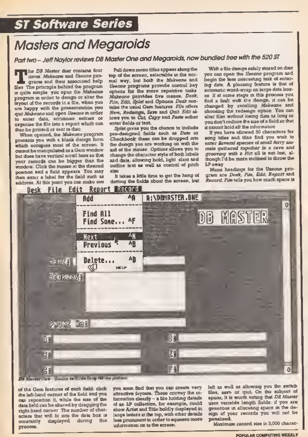
"It's one of those memory problems, we can't do everything we would like to"

In February the intense programming begins. Roy will be working on animation and input routines Greg will finalise the plot and all the drawings Someone at some stage will put in some sound. The game is to be finished by the end of February and should be released towards the end of March.

The reason for the gap is simply to give time for the computer press to review the game such that the reviews will appear roughly when the game is released

After that there is conversion to the Amstrad to consider, and development of scenario cassettes to enhance the original. None of this timing actually includes packing up and sending out the review copies, dealing with people deranged by puzzles in previous Gargoyle offerings, or talking on the phone to customers

Easy money it isn't



ST Software Series

Masters and Megaroids

Part two – Jeff Naylor reviews DB Master One and Megaroids, now bundled free with the 520 ST

The *DB Master* disc contains four items *Makeone* and *Useone* programs and their associated help files The principle behind the program is quite simple you open the *Makeone* program in order to design or alter the layout of the records in a file, when you are happy with the presentatation you quit *Makeone* and open *Useone* in order to enter data, scrutinise entries or organise the file into a report which can then be printed or sent to disc

When opened, the *Makeone* program presents you with a blank design form which occupies most of the screen. It cannot be manipulated as a Gem window but does have vertical scroll bars so that your records can be bigger than the window. Click the mouse at the desired position and a field appears You may then enter a label for the field such as address. At this point you can make use

Pull down menu titles appear along the top of the screen, selectable in the normal way, but both the *Makeone* and *Useone* programs provide control key options for the more repetitive tasks *Makeone* provides five menus. *Desk*, *File*, *Edit*, *Splat* and *Options*. *Desk* contains the usual Gem features *File* offers *New*, *Redesign*, *Save* and *Quit*. *Edit* allows you to *Cut*, *Copy* and *Paste* either enter fields or text.

Splat gives you the chance to include pre-designed fields such as *Date* or *Checkbook*: these can be dropped into the design you are working on with the aid of the mouse *Options* allows you to change the character style of both labels and data, allowing bold, light slant and outline text as well as control of pitch size

It takes a little time to get the hang of dotting the fields about the screen, but

With a file design safely stored on disc you can open the *Useone* program and begin the less interesting task of entering data A pleasing feature is that of automatic word-wrap on large data boxes If at some stage in this process you find a fault with the design, it can be changed by recalling *Makeone* and choosing the redesign option You can alter files without losing data as long as you don't reduce the size of a field so that it cannot hold all the information

If you have allowed 50 characters for song titles and then find you wish to enter *Several species of small furry animals gathered together in a cave and grooving with a Pict* all is not lost, although I'd be more inclined to throw the LP away

Menu headings for the Useone program are *Desk*, *File*, *Edit*, *Report* and *Record*. *File* tells you how much space is

of the Gem features of each field: click the left-hand corner of the field and you can reposition it, while the size of the data field can be altered by dragging the right-hand corner The number of characters that will fit into the data box is constantly displayed during this process.

you soon find that you can create very attractive layouts. These convey the information clearly – a file holding details of an LP collection, for example, could show Artist and Title boldly displayed in large letters at the top, with other details less prominent in order to squeeze more information on to the screen.

left as well as allowing you the switch files, save or quit. On the subject of space, it is worth noting that *DB Master* uses variable length fields: if you are generous in allocating space in the design of your records you will not be penalised.

Maximum record size is 3,000 charac-

Megaroids

Most readers will be very familiar with this game; it began life in the arcades on the vector graphic machine *Asteroids* and versions have been written for most home computers. The game is a classic example of a simple idea resulting in a highly addictive game. You control your spaceship with rotate and thrust keys and attempt to shoot the menacing rocks that float past. These break up into smaller and faster rocks, and just to keep you alert, the odd flying saucer appears to hasten your inevitable destruction.

The version that Atari gives away with the ST is remarkable in two respects. Firstly, it is public domain software. Secondly, its graphics are better than the original arcade game.

Megaroids has been written in C using a compiler called Megamax, and is freely available because it carries advertisements for the said compiler.

The game interfaces neatly with Gem, using pull down menus, and saves the high score as a disc file. Playing *Megaroids* is as much fun as the original, with the added bonus of solid, as opposed to vector, graphics. It could be argued that this game is a waste of a 16-bit, 512Kbyte, computer, but more to the point, it is a good advertisement for the ST's speed and graphics as well as Megamax's compiler.

ters, but the total amount of information is limited by Ram size. The 520 ST allows about 45Ks worth of characters to be held in a file, although the program can deal with up to 320K if enough extra memory is provided.

Editing records is accomplished by moving the cursor with the mouse and typing, with the additional help of *Cut*, *Paste*, *Copy* and *Clear Field* from the *Edit* menu. *Report* options allow you to decide what shape a report will take, you may decide to print out certain records using Equals, Between and Contains tests, dictate the style of a report and which fields it is to contain. *DB Master* will also total up any numerical fields in a report.

The final menu option is *Record*. Adding and deleting records is catered for here, as well as *Find All*, which lets you examine all the records, and *Find Some*, giving you many options as to which records are displayed. There are three levels of selection using up to three differing fields, so a comprehensive sifting of information is possible.

It is very easy to get started with *DB Master*, although more complex operations need a little thought. Much effort has gone into the presentation of the package, and the graphic options are so pleasant that I found myself spending much time just fiddling around with record formats.

However, some aspects of the "friendly" interface began to irritate me – I soon took to using control key options. When editing a record the cursor and delete keys do not operate so you are forced to use the mouse.

Another problem was the program's lack of a *Save As* option, particularly as no backing files are produced by the system, so using an old file as the basis of a new one involved copying, renaming and disc swapping if you wanted to preserve the original. One important requirement of database programs is their inability to lose data because of operator error. *DB Master* is relying on the user to be sensible about copying files. Perhaps Gem makes this program appear more suitable for first-time users than it really is.







New deal

Program *Macrocosmica* **Micro:** Amstrad CPC range **Price** £9.95 **Supplier** Amsoft Gold 169 King's Road, Brentwood, Essex

Much as I love playing *Elite*, the arcade sequences always frustrate my tired old fingers. To the rescue comes author David Reading with his *Macrocosmica*. It's *Elite* without the zapping: ten galaxies, each consisting of 600 cells, plus an eleventh which is initially hidden from the player, await exploration.

The strategy required is to keep your fuel levels topped up to ensure a safe passage from planet to planet while avoiding irate attacks and meteor storms, and earning enough money to equip your ship with the right equipment to get from galaxy to galaxy.

Buying cheap and selling dear (Civil War breaks out quite often, when a killing can be made in small arms and medical supplies) is the way to make money, though you can make shady deals with pirates, gamble at the local Hi-Lo casino, or even, indulge in a bit of drug-smuggling (beware the Customs officers).

Good sound and pretty graphics make this an attractive and addictive game to play, but a major letdown is the lack of a *Save* feature, necessary, surely, in a game of this sort. A *Pause* facility would have been a poor second-best, but even this is missing.

An enjoyable albeit flawed game – but the price of nearly ten quid is surely well over the odds?

Tony Bridge

In the pit

Program *BJ The Return* **Micro** QL **Price** £12.95 **Supplier** Eidersoft.

Sinclair once launched a game for the *QL* called *Caverns*, which became popular, with its hero being a little match shaped character called BJ. BJ could jump, crawl, fly, fall and go in any other horizontal direction he chose. He now has left the employment of Sinclair and reappeared on the sequel called *BJ The Return* only to find that he is still doing the same job.

His good friend Drunx *(QL Caverns)* has died and BJ wants to get out of the Caverns. The Fairy Matilda will let BJ go, if he finds all the scattered Miracles she needs, the only snag is that there are 50 new rooms in which to search. The miracles look like tennis balls and the rooms are more complex than in the previous game.

Eidersoft have put in the additional bonus of a competition with a top prize of their complete business package. All in all the game has been much improved from its original, though it still is not any new standard in QL software.

Matthew Palmer

Problems

Program *Extricator* **Price** £1.99 **Micro** Spectrum **Supplier** Precision Games, 2 Fern Hill, Langdon Hills, Basildon, Essex SS16 5UE

Precision is a new name, to me, but it is a company with a great future if its second release is as good as its first.

The adventure is *Quill'd, Patch'd* and *Illustrated* and isn't at all bad. Although mapping and exploring is initially fairly easy for the experienced and beginner adventurer alike, eventually an insoluble problem is met, though how soon depends on your experience.

The descriptions are mostly atmospheric, displaying a sense of humour, neither heavy-handed nor obstructive to the flow of the game.

You have been assigned to infiltrate Star Fleet Headquarters, and 'extricate' an imprisoned professor. You must pass through several sectors, each of which has its own set of problems to solve.

Having solved the problems, you need to sabotage the computer: now the automatic repair system begins giving you a time limit in which to find and rescue the Prof. So you haven't got a lot of time to work everything out. Luckily, *The Patch* allows a *Ramsave* and *Load*, so losing a life is not too much of a hardship, and anyway, the location descriptions often contain subtle clues. Good value.

Tony Bridge

Numbers up

Program *Number Games* **Micro** BBC B/Acorn Electron **Price** £10.95 **Supplier** BBC Soft, 35 Marylebone High Street, London W1M 4AA

Billed as maths fun games, these actually offer simple training in strategic thinking.

The package offers six simple games which involve moving round a screen filled with numbers either to collect as high a total as possible or to approach a specific target sum. Each game is well explained on screen, each can be repeated exactly or refreshed with new numbers.

The games are different enough to maintain interest for some time. The booklet offers children practical help in solving the puzzles they face. Pupils will learn how to think ahead and develop a sense of symmetry.

The only hiccup in this package is that the booklet lists the cassette software wrongly. It gets one program title wrong and promises a tape-to-disc copier which does not exist on my copy. Otherwise the book and programs can be warmly recommended to all parents.

Dave Watterson

Snow fun

Program *Winter Games* **Micro** Spectrum **Price** £6.95 **Supplier** U.S. Gold Ltd, Unit 10, The Parkway Industrial Centre, Heneage Street, Birmingham E7 4LY

Icy the winter's here again and it's snow use grumbling so get your skates on and ski if there's any good games to play.

Okay – enough puns and on with *Winter Games* son of *Summer Games* (how do they dream up these titles?). It's a seven event, multi-player line up across two sides, with practice and single event modes as well as the grand slam, and it lets you try all those events that don't seem so glamorous in the urban slush.

If skiing's your choice there are three events. The ski jump is a question of timing your launch, with a separate screen for balancing before effecting a neat landing. Hot Dog Aerials is stunt skiing, with you competing for style points by doing as many back flips, etc, before landing without doing the splits. The Biathalon is cross-country skiing combined with target practice.

Skaters are catered for with Speed Skating, which has finally destroyed my Quickshot, and interestingly, two timed events in which you complete routines. While not quite Torville and Dean it's quite a challenge to remember what follows what, or you could end up with an ignominiously chilled b.t.m.!

Finally, if your name's Robert you might like to try the Bobsled, but while I'm convinced that this computerised version of that suicidal dash down a mountainside on a tin tray is a major contribution to personal safety, I didn't actually find it too exciting. On the whole though, this is a good selection, which compares well with its competitor, *Winter Sports*. While that scores higher in a couple of places, I think if I was going for just one this would be it, with its superior graphics and emphasis on style in events.

John Minson



POINT FUNCTION

by Jon Prestidge

Do you ever lie awake at nights wondering what happened to the *Point* function? Do you ever wonder why the Spectrum *Point* function is not available on the QL, even though the *Point* statement is ?! And did you break out in a cold sweat when you found out that the Spectrum *Plot* is the QL *Point*, but the QL *Plot* isn't the Spectrum *Point* because the QL *Plot* is a bad name? Confused?

Well, in simple terms, although the *Point* statement is one of the QL commands, it is nothing like the Spectrum *Point* function, in fact it is the exact opposite.

While the QL *Point* will light up a pixel at the specified co-ordinates, the Spectrum *Point* will examine the pixel and return either a '0', if the pixel isn't lit-up, or '1' if the pixel is lit-up.

So what do you do if you want to examine a pixel on the QL as you can on the Spectrum? Don't panic because the below Superbasic *L-Point* function is a replacement of the old Spectrum *Point* function.

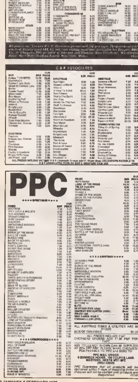
To use it you have to specify the X and Y co-ordinates, and also a third parameter which specifies the screen mode, either four or eight. The co-ordinates range from 0,0 which is the top left of the QL screen, to 511,255 in Mode 4 and 255,255 in Mode 8 regardless of any windows or graphic scaling set up.

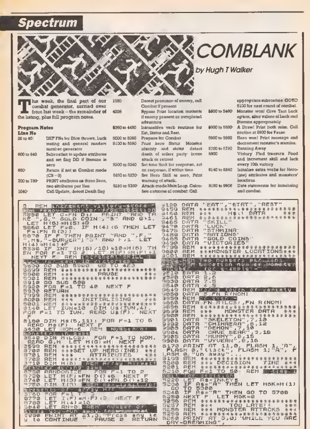
What the function does is a calculation on the co-ordinates to find the address in memory of the pixel. It then does a Peek on the screen, obtaining a word which then has some bit bashing done on it to isolate the information of the required pixel from the other seven pixels contained in that word. Then finally it does some more jiggling of bits to determine the colour of the pixel. The colour is then returned to the expression which called *L-Point* as a number between zero and seven inclusive.

When trying out the function you'll notice a green spot appearing at the co-ordinates you specified. This is only a test feature which helps check that you've typed in the function correctly. When you're satisfied that the spot is appearing in the right place, then you can delete Line 30400 to get rid of this.

Since *L-Point* can determine the colour of the pixel, not just whether it is on or off, the *L-Point* function is also a good substitute for the Spectrum *Attr* function. So now you'll have no more problems keeping track of those aliens on the screen.

```
30100 DEFine FuNction L_POINT( XA%, YA%, V_M )
30110 REMark ====
30120 LOCal MEM : LOCal X% : LOCal Y%
30130 LET X% = XA% : Y% = YA% : LET video_mode = V_M
30140 REMark ====
30150 IF video_mode = 8 OR video_mode = 4 THEN
30160    LET video_mode = 2 : REMark Else for 8 colour mode
30170 ELSE
      colour/high-res mode
30180    LET video_mode = 1 : REMark Else this
30190 END IF
30200 REMark ====
30210 IF Y% < 0 OR X% < 0 OR Y% > 255 OR
      ( 511 / video_mode ) THEN
30220    PRINT £0, ' bad co-ordinate/s in L_POINT
         procedure '
30230    STOP
30240 END IF
30250 REMark ====
30260 MEM = 131072 + ( Y% * 128 )
30270 WORD_NUM = MEM + INT( ( X% * video_mode ) / 8 ) * 2
30280 PIXEL_NUM% = 7 - ( ( X% * video_mode ) MOD 8 )
30290 IF MEM >= 163840 OR MEM < 131072 THEN
30300    PRINT £0, ' address not in video RAM
30310    STOP
30320 END IF
30330 REMark ====
30340 LET GREEN_BYTE% = PEEK( WORD_NUM )
30350 LET RED_BYTE%   = PEEK( WORD_NUM + 1 )
30360 LET MASK% = 2 ^ PIXEL_NUM%
30370 IF video_mode = 2 THEN
30380    LET mask2% = 2 ^ ( PIXEL_NUM% - 1 )
30390 END IF
30400 POKE( WORD_NUM ), ( MASK% || PEEK( WORD_NUM ) ) :
      REMark Delete this line after testing
30410 LET COLOUR% = 0
30420 IF RED_BYTE% && MASK% THEN LET COLOUR% =
      COLOUR% + 2
30430 IF GREEN_BYTE% && MASK% THEN LET COLOUR% =
      COLOUR% + 4
30440 IF COLOUR% = 6 AND video_mode = 1 THEN LET COLOUR%
      = COLOUR% + 1
30450 REMark -==-
30460 LET flash_stat = 0
30470 IF video_mode = 2 THEN
30480    IF mask2% && RED_BYTE% THEN LET COLOUR% =
         COLOUR% + 1
30490    IF mask2% && GREEN_BYTE% THEN LET flash_stat = 1
30500 END IF
30510 RETurn COLOUR%
30520 END DEFine
```


ANCIENT & MODERN
C & F ASSOCIATES
PPC



COMBLANK

by Hugh T Walker

This week, the final part of our combat generator, carried over from last week – the remainder of the listing, plus full program notes.

Program Notes

Line No	
20 to 40	DEF FNs for Dice throws, Luck testing and general random number generator
600 to 640	Subroutien to update attributes and set flag DD if Stamina is zero
650	Return if not in Combat mode (CB=0)
700 to 730	PRINT attributes on three lines, two attributes per line
1040	Call Update, detect Death flag
1080	Detect presence of enemy, call Combat if present
4008	Bypass Print location contents if enemy present or completed adventure
8350 to 4450	Intransitive verb routines for Eat, Status and Rest.
5000 to 5080	Prepare for Combat
5100 to 5190	Print here Status Monster identity and states detect death of either party invite attack or retreat
5200 to 5240	Set time limit for response, act on response, if within time
5250 to 5270	Set Hero Skill to zero, Print warning of attack.
5310 to 5330	Attack-mode Main Loop. Calculate outcome of combat: Call appropriate subroutine GOTO 5100 for next round of combat.
5400 to 5460	Monster won! Give Test Luck option, alter values of Luck and Stamina appropriately
5500 to 5520	A Draw! Print both miss. Call routine at 5800 for Pause
5600 to 5690	Hero won! Print message and decrement monster's stamina.
5700 to 5790	Running Away
5800	Victory Find treasure Food and increment skill and luck every 10th victory
8140 to 8840	Initialise extra verbs for Hero-(ine) attributes and monsters' locations
9120 to 9906	Data statements for initialising and combat.

```
3  REM Increment victory score and remove monster from location
5850 LET G=FN D()  PRINT "AND TAKE ",G," GOLD COIN","S" AND G>1. LET H(6)=H(5)+G
5860 LET F=0. IF H(4)<6 THEN LET F=(FN R(3))
5870 IF F THEN PRINT "AND ",F," ",M$,"-BURGER";"S" AND F>1. LET H(4)=H(4)+F
5330 IF INT (H(6)/10)*10=H(6) THEN FOR F=1 TO 2  LET H(F)=H(F)+1  NEXT F  REM Increment SKILL & LUCK for each 10 victories
5890 GO SUB 5900  GO TO 4E3
5899 REM ***************************
5900 REM ***        PAUSE        ***
5301 REM ***************************
5910 GO SUB 600
5920 FOR F=1 TO 40  NEXT F
5930 RETURN
7999 REM ***************************
8000 REM ***   INITIALISING      ***
8001 REM ***************************
8140 LET IVN=10  DIM U$(IVN,4). FOR F=1 TO IVN. READ U$(F). NEXT F
8160 DIM M$(6,11): FOR F=1 TO 6  READ M$(F)  NEXT F
3630 LET NOM=6  REM Number of monsters in game
8640 DIM M(LCS)  FOR F=1 TO NOM. READ G,H  LET M(G)=H  NEXT F
8699 REM ***************************
8700 REM ***SET UP HERO(INE)     ***
8701 REM ***    ATTRIBUTES       ***
8702 REM ***************************
8710 DIM H(6)  REM Array H()=attributes during game
8720 RANDOMIZE  FOR F=1 TO 2
8730 LET H(F)=FN D()+6  NEXT F
8740 LET H(3)=FN D()+FN D()+12
8750 DIM I(3)  REM max limit for elements of array H()
8760 FOR F=1 TO 3
8770 LET I(F)=H(F)+2  NEXT F
8780 LET H(4)=10
8840 LET RN=0  REM number of times you run away from combat
2990 PRINT AT 21,3,"Press any key to CONTINUE "  PAUSE 0  RETURN
9120 DATA "EAT","STAT","REST"
9459 REM ***************************
9460 REM ***      H$() DATA      ***
9461 REM ***************************
9465 DATA "SKILL"
9470 DATA "LUCK"
9475 DATA "STAMINA"
9480 DATA "RATIONS"
9485 DATA "GOLD COINS"
9490 DATA "VICTORIES"
9799 REM ***************************
9800 REM ***MONSTER LOCATIONS    ***
9801 REM ***************************
9802 REM Two numbers per line
9803 REM location number, monster number for example -
9810 DATA 1,2
9820 DATA 2,6
9830 DATA 7,5
9840 DATA 4,5
9849 REM for a touch of variety
9850 DATA 5,FN R(NOM)
9859 REM or even -
9860 DATA FN R(LCS),FN R(NOM)
9898 REM ***************************
9899 REM ***    MONSTER DATA     ***
9900 REM ***************************
9901 DATA "SKELETON",7,10
9902 DATA "CHIMAERA",8,12
9903 DATA "DEMON",7,10
9904 DATA "CAVE BEAR",5,10
9905 DATA "MUMMY",8,15
9906 DATA "WYVERN",8,16
5170 PRINT AT 11,0, FLASH 1,"A", FLASH 0,"ttack", FLASH 1;"R", FLASH 0,"un away"..,
5199 REM ***************************
5200 REM *** DECISION   TIME     ***
5201 REM ***************************
5210 FOR F=1 TO 50  REM time limit for decision
5220 LET A$=INKEY$
5230 IF A$="A" THEN LET HSK=H(1)  GO TO 5300
5240 IF A$="R" THEN GO TO 5700
5250 NEXT F  LET HSK=0
5256 REM ***************************
5257 REM ***     TOO LATE!!      ***
5258 REM *** MONSTER ATTACKS     ***
5259 REM ***************************
5260 PRINT AT 3,0;"WHILE YOU ARE DAY-DREAMING",
```

```
5270 PRINT "THE ";M$," ATTACKS Y
OU"
5299 REM ************************
5300 REM ***RESULT OF COMBAT ***
5301 REM ************************
5310 PRINT AT 11,0,
5320 GO SUB 5500+100*SGN ((FN D(
)+FN D()+MSK)-(FN D()+FN D()+MSK
))
5330 GO TO 5100
5399 REM ************************
5400 REM *** MONSTER HIT YOU ***
5401 REM ************************
5410 PRINT "THE ",M$," STRIKES Y
OU!",
5420 PRINT "TEST YOUR LUCK? (Y/N
)",
5430 LET LK=0  LET A$=INKEY$
5440 IF A$="Y" THEN LET LK=FN L(
)  LET H(2)=H(2)-1  GO TO 5460
5450 IF A$<>"N" THEN GO TO 5430
5460 LET H(3)=H(3)-2+LK  RETURN
5499 REM ************************
5500 REM ***BOTH CLUMSY OAFS!***
5501 REM ************************
5510 PRINT "BOTH MISS!",,
5520 GO TO 5900
5599 REM ************************
5600 REM *** YOU HIT MONSTER ***
5601 REM ************************
5610 LET MST=MST-2
5620 IF MST<1 THEN LET MST=0
5630 PRINT "YOU ","HURT" AND MST
,"KILLED" AND NOT MST," THE ",M$
5640 PRINT AT 7,27,MST,"  "
5650 GO TO 5900
5699 REM ************************
5700 REM *** RUNNING AWAY ***
5701 REM ************************
5710 PRINT AT 11,0,"COWARD!!!",,
5720 LET RN=RN+1   REM running a
way too much causes bad luck!
5730 IF RN>5 THEN PRINT "NOT THI
S TIME, OLD SPORT!". LET RN=0
FOR F=1 TO 2  LET H(F)=H(F)-(RND
>.3). NEXT F  GO SUB 5900  GO TO
 5100
5740 IF NOT FN L() THEN PRINT "O
H! BAD LUCK! YOU'RE TRAPPED"  GO
 SUB 5900. GO TO 5100
5750 PRINT "THE ",M$," SWIPES"'"
AT YOU AS YOU TURN!"
5760 LET H(3)=H(3)-2+FN L()
5770 GO SUB 6000  LET LT=LC
5780 LET LC=LL  LET LL=LT
5790 GO TO 4E3-(3E3 AND DE)  REM
 escape to last location if you
survive
5799 REM ************************
5800 REM ***     VICTORY     ***
5801 REM ************************
5810 FOR F=3 TO 11. PRINT AT F,0
,  NEXT F
5820 PRINT AT 0,9,"!!!VICTORY!!!
",TAB 9,"*************"
5830 PRINT AT 3,0,"YOU SEARCH TH
E ",M$,
5840 LET H(6)=H(6)+1  LET M(LC)=
```

INTERRUPTS

by Eric Deghaye

Last week we saw the basic theory of interrupts and how to use them, and used a small demonstration program. We are now going to look at some of the uses of interrupts and play with another demonstration program.

Have you ever wondered how a computer can check if a 'break-escape-stop' key has been pressed? The answer is simple All you have to do is check which key has been pressed with an interrupt driven routine Disabling such a stop key can be achieved quite simply by changing the interrupt vectors all you need to do is make them point past the point in the routine where the stop key is checked If the key is never checked, it will never have any effect

On the Commodore 64 the IRQ vector points to $EA31 At the location $EA31 we find a jump instruction to a routine checking if the stop key has been pressed To disable the stop key we just need to change the vector so that it points to the next instruction, ie $EA34 This is achieved with *Poke 788,52* (replacing $31 with $34 at the address $0314)

I said above that the interrupt can be used to check if a key was being pressed. Now, the 64 has function keys built-in, but the rather poor Basic does not allow us to program them. Programming these keys would make a pretty interesting use for an interrupt routine wouldn't it?

Our program must consist of several parts

1) Change the interrupt vectors
2) In the routine itself, check if the required key has been pressed.
3) Put a command in the keyboard queue

The program Interrupt Example 2 below shows how it is done First, the vectors are changed to point to our routine Then the first part of the routine checks which key was last pressed, by looking at the content of $C5 We then check if the value contained is the ASCII code for the F1 key, F1 being $04 If the value is different, then we do not have the correct key, and we exit the routine

If, on the other hand the correct key was pressed, we start our routine We will put the word 'LIST' followed by a carriage return in the keyboard queue (placing text in the keyboard queue is equivalent to typing the same text) Putting the text in the queue is achieved with a simple indexed loop, and the last part is telling the computer how many characters we have put in the keyboard queue (The amount of characters present in the queue is held in $C6)

Whenever after typing SYS 20480 the F1 key is pressed, the word 'LIST' will appear on the screen and a listing will be performed

I can see the brainy ones amongst you thinking 'hold it whenever an interrupt occurs, where is the content of A, X, Y and P? Do we lose it?' The answer is no As a standard feature the 6502 on an interrupt pushes the program counter and the status register on the stack But if you care to have a look at the primary address of the IRQ routine ($FF48), I said in Part I that it was some sort of glorified jump The first task of this routine is actually to save A, X and Y on the stack And, of course, the last job of the routine starting at $EA31 is, you've guessed it, pull from the stack and restore the values of A, X and Y

If you are extra keen it should not be so difficult to write a program along these lines to program all function keys – I know how easy it is, I've done it!

Next week, a bleeping keyboard

```
10 REM BASIC LISTING FOR INTERRUPT EXAMPLE 2
20 :
30 :
40 INC=0
50 BASE=20480
60 READ A:IF A=-1 THEN SYS 20480
70 POKE BASE+INC,A
80 INC=INC+1: GOTO 60
90 :
95 :
100 DATA120,169,13,141,20,3,169,80,141,21,3,88,96,165,197,201,4,208,17,174
110 DATA39,80,189,40,80,157,119,2,202,208,247,173,39,80,133,198,76,49,234,6
120 DATA32,76,73,83,84,13,0,0,-1,-1
```

```
;--------------------------------------------
;
;     INTERRUPT EXAMPLE 2
;
;--------------------------------------------
;
;
KEYBSIZE    = $C6      ;POINTER,NO. OF CHARS IN KEYBUF
KEYBUF      = $0277    ;START ADDRESS OF KEYBOARD BUFFER
IRQVECA     = $0314    ;LSB OF IRQ ROUTINE ADDRESS
IRQVECB     = $0315    ;MSB
RETURNPNT   = $EA31    ;NORMAL ADDRESS OF IRQ ROUTINE
*=$5000
;
;--------------------------------------------
;     RESET VECTORS
;--------------------------------------------
;
            SEI
            LDA #<ROUTINE      ;CHANGE THE IRQ VECTORS
            STA IRQVECA        ;SO TO REROUTE EXECUTION TO
            LDA #>ROUTINE      ;OUR OWN PROGRAM
            STA IRQVECB
            CLI
            RTS
;
;
;
;--------------------------------------------
;     THE MAIN ROUTINE
;--------------------------------------------
;
ROUTINE     LDA $C5            ;GET THE VALUE OF THE CURRENT KEY &
RETURN
            CMP #$04           ;IS IT F1
            BNE EXIT           ;NO THEN EXIT
            LDX LENGTH         ;GET THE LENGTH OF TEXT
FILL        LDA TEXT,X         ;AND PUT THE TEXT IN THE
            STA KEYBUF,X       ;KEYBOARD BUFFER
            DEX
            BNE FILL
            LDA LENGTH         ;GET THE LENGTH AGAIN
            STA KEYBSIZE       ;SET POINTER ACCORDINGLY
EXIT        JMP RETURNPNT      ;GO TO WHERE THE IRQ ROUTINE
 NORMALLY GOES
;
;
;--------------------------------------------
;
LENGTH      BYT 5
TEXT        BYT " LIST",13
;--------------------------------------------
;
;
; THERE IS NOTHING WRONG WITH PUTTING YOUR OWN TEXT ABOVE
; AS LONG AS YOU LEAVE A SPACE FIRST AND GIVE THE CORRECT
; LENGTH
```


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SCROLL DISPLAY

by P D Whitehurst

This program produces a display like the scrolling displays in shop windows. The program is filled with Rem statements, and its operation should be reasonably easy to follow for anyone with a rough knowledge of machine code.

The resultant effects could even be used as a shop window display ... maybe even for demonstrating BBC micros! Unfortunately, it cannot be used on an Electron, due to its use of Mode 7.

An interesting thing to try is to vary the value at the accumulator, in line 1410. Try LDA &7F – each character will be made up of smaller characters of the same type!

Program Notes

Variables

String – location of string in memory
&70 – location at top left of screen
&72, &74 – temporary used by program
&76 – scroll position in character
&77 – present character in string
&78 – location of string
&7E – temporarily used
&7F – last character read by routine

```
10REM teletext screen message system
20REM by P D Whitehurst
30REM (c) 1985
40MODE7
50VDU23,1,0;0;0;0;
60DIMSTRING 255
70 &70=STRING
80PROC assemble
90$STRING="    ...The function of this prog
ram is to display a string of characters on a s
creen like those L.E.D. displays often seen i
n shops ... "
100CALLmainloop
110MODE7
120$STRING="It can only display strings 255
 characters long,but this need not limit you,
as the BBC can only handle this many in a st
ring,and can be got around by using the metho
d used here (recalling the routine with a dif
ferent string)"
130CALLmainloop
140MODE7
150END
160DEFPROC_assemble
170REM Machine code scrolling and
180REM drawing routine
190FORpass=0TO2 STEP2
200P%=&A00
210[
220OPT pass
230.scroll
240\ Scroll entire screen by updating
250\ the 6845 registers 12 & 13
260LDA #19    \Wait for field sync
270JSR &FFF4
280LDA &70    \Increment top left corner
290CLC        \of screen by one
300ADC #1
310STA &70
320LDA &71
330ADC #0
340STA &71
350CMP #&80
360BCC nottoobig  \Gone off screen end?
370SEC
380SBC #4
390STA &71
400.nottoobig SEC
410SBC #&74
420EOR #&20
430LDX #12
440STX &FE00       \VDU 23 too slow to be
450STA &FE01       \used in this case
460LDX #13
470STX &FE00
480LDA &70
490STA &FE01
500LDA &70         \ This bit rubs
510CLC             \ out rightmost line
520ADC #39
530STA &72
540STA &74
550LDA &71
560ADC #0
570STA &73
580STA &75
590CMP #&80
600BCC notoround  \Beyond screen end?
610SEC
620SBC #4
630STA &73
640STA &75
650.notoround
660LDX #25        \25 lines on screen
670.loop
680LDA #32
690LDY #0
700STA (&72),Y
710LDA &72
720CLC
730ADC #40
740STA &72
750LDA &73
760ADC #0
770STA &73
780CMP #&80
790BCC nottoobig1 \past screen end?
800SEC
810SBC #4
820STA &73
830.nottoobig1
840DEX
850BNE loop       \last line?
860RTS
870.display
880JSR scroll     \This section displays
890LDA &76        \the characters
900CMP #8
910BNE notzero
920LDA #0
930STA &76
940.readchar
950LDY &77        \number of letter
960LDA (&78),Y    \Read in letter
970INY            \next letter
980STY &77
990STA &7F
1000LDX #&7F
1010LDY #0
1020LDA #&A       \Read
1030JSR &FFF1     \character definition
1040.notzero
1050INC &76
1060LDA &74       \Set top of letters
1070CLC
1080ADC #&18
1090STA &74
1100LDA &75
1110ADC #1
1120STA &75
1130CMP #&80
1140BCC nottoobig2
1150SEC
1160SBC #4
1170STA &75
1180.nottoobig2
1190LDX #0
1200.loop2
1210ASL &80,X     \Read in next pixel
1220BCS set       \of character
1230LDA &74       \If clear-go
1240CLC           \forward 2 lines
1250ADC #80
1260STA &74
1270LDA &75
1280ADC #0
1290STA &75
1300CMP #&80
1310BCC nottoobig3
1320SEC
1330SBC #4
1340STA &75
1350.nottoobig3
1360JMP endloop2
1370.set          \Plot pixel of
1380LDA #2        \character
1390STA &7E
1400.setloop
1410LDA #&FF      \load screen character
1420LDY #0
1430STA (&74),Y   \put it on screen
1440LDA &74
1450CLC
1460ADC #40
1470STA &74
1480LDA &75
1490ADC #0
1500STA &75
1510CMP #&80
1520BCC nottoobig4
1530SEC
1540SBC #4
1550STA &75
1560.nottoobig4
1570DEC &7E       \Two chars./pixel
1580BNE setloop
1590.endloop2
1600INX
1610CPX #8        \next pixel
1620BNE loop2
1630RTS
1640.mainloop
1650LDA #0
1660STA &70
1670LDA #&7C
1680STA &71
1690LDA #0
1700STA &77       \character number
1710STA &76       \count to next char
1720.LOOP
1730JSR display
1740LDA #&81
1750LDX #0
1760LDY #0
1770JSR &FFF4
1780CPY #&1B      \escape pressed?
1790BEQ end
1800LDY &77
1810LDA (&78),Y
1820CMP #13
1830BNE LOOP
1840.end RTS
1850]
1860NEXT pass
1870ENDPROC
```

Special Offer

FREE LABELS!

Is your life in ruins because you missed our cover flap issue, and thus can't collect the coupons for the software and Tony Kendle's *Arcade Champion's Guide?*

Well, cheer up, because there's a consolation offer this week. Yes, we've found some more cassette-labels and we're giving them away.

Our ever popular Habitat-style cassette labels will brighten up your program tapes no end.

All you have to do is collect this week's coupon 4, on page 6, and next week's coupon 5, and send them both to Cassette Label Offer, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP. Don't forget to include your own name and address with your entries.

Please send us your coupons so that they reach us no later than February 28th.

And please note – this is an *alternative* to the *Arcade Champion's Guide*/Firebird software offer. We are not giving away cassette labels with either the software or the *Arcade Champion's Guide*.

SIDE | TITLE

Popular Computing Weekly



Routine selection

A bumper bundle of pokes arrived in the mail from Gerald Gilroy of London, some of which we have had before, but these are a selection of his excellent routines.

Starion

Starion has, it seems, two different kinds of loader, so Gerald has supplied us with two routines. In both cases you should bypass the short basic header. If the game doesn't load successfully with one routine, then try the other.

```
10 FOR N=65450 TO 65480: READ A: POKE N,A: NEXT N: PRINT "STARION IS LOADING"
20 RANDOMIZE USR 65450
30 DATA 49, 0, 0, 221, 33, 0, 64, 17, 170, 191, 62, 255, 55, 205, 86, 5, 175, 50, 21, 178, 50, 239, 177, 62, 201, 50, 107, 179, 195, 67, 125
OR
30 DATA 49, 0, 0, 221, 33, 0, 64, 17, 170, 191, 62, 255, 55, 205, 86, 5, 175, 50, 150, 179, 50, 7, 178, 62, 201, 50, 107, 178, 195, 67, 126
```

Gyron – Infinite energy – we haven't had a chance to check this one

```
10 CLEAR 65535: LOAD "" CODE
20 POKE 28552, 201: POKE 29089, 0
30 RAND USR 24880
```

View To A Kill

Load "THE END" and enter "HRMQE" in upper case

Ad Astra

```
10 LOAD ""CODE: LOAD "": LOAD ""CODE: POKE 35853, 0: RAND USR 33000
```

Gerald also writes if readers would like maps of the following games then send a SAE enclosing £1 to the address given. *Knight Lore, Dun Darach, Dummy Run, MUD, Jet Set Willy II* (+ pokes), *Alien 8, Tir Na Nog*. Gerald Gilroy, 65 Ellerton Road, Wandsworth Common, London SW18 3NQ

Just a quick printing error to correct – the poke for infinite time in the *Gyroscope* routine a couple of weeks ago should read *POKE 59136, 201*.

Now let's continue with our *Dragontorc* tips, following on from the Vaults of Locris where we left you last week.

Proceed to room with chests. Open first with servant. Take key, open third, avoid the spider. Take key, open second. Keep this key and take Leyrod spell from chest. Return to fireball room. Open chest with key. Take rune and half moon symbol, the fireball will change and you get the message "The vault key is hidden in sanctuary". Proceed to room with E rune. Leave stuff there.

Search skeleton to find rune. Search other skeleton to find missile and evil eyes. (Kill eyes with bane.) Touch flying spell with servant or it will kill you. Then take it (it is Missile).

Put runes on E rune in order X-I-T to make exit. Pick up goodies and walk onto cube to transport to stone circle. Use Leyrod to find leycubes. Pick up M seal and jump on yellow cube. In the stone circle use Leyrod again and take yellow cube route.

Webwood

Kill spiders with missile. Search the wood for three energise herbs. Find stick. If a spider bites you, your energy will drain away, use Heal to stop this. Move stone with stick and take axe. Use M seal to move flagstone. Go down hole. Open chest with seal to get message "In a stump is the key, if axed spike will see". Leave message, half moon. Touch servant on table to make exit. Take milk and "Warrior" gem. Go down exit. Axe the stump. Find log. Use milk to find hedgehog "Spike". Take "Spike" to stump and find door key. Go back down Merlyn's cave and open door with key. Open chest with M seal.

Dragontorc from Hewson

Take H symbol and half moon – proceed to Halgor's sanctuary. H = Halgor's seal – has message "Four Crowns to break, let the maker unmake". The maker stands for Halgor and also the magic anvil used to create the crowns.

The Sanctuary of Halgor

Werewolves slow you down if they bite. Use Heal to move normal speed. You can kill them with Warrior spell but it's best to avoid this as they get rather nasty. Giving them things makes them stop deducting energy from you, but they still "slow" you.

Find and take the energise herbs. Find the skeleton. Search it with the servant to find divining rod. Search leaves with divining rod to find Bane jewel. Avoid pools. Search with divining rod to find "Crystal of antithought". Note: The gem deducts energy from Maroc while he takes/puts it in sack, so do this quickly.

Use H seal to move flagstone. Go down. Read message "Beware those who enter without my seal". Leave everything except the H seal and go through door. Touch seal on three spiders before they kill you. Take three spells: Slow, Return, Mantle. Use Return to get into Halgor's tomb room. Search tomb for door key to get out. Key has message "With anvil and stone let my wrong be undone". His 'wrong' is the making of the Dragontorc. The stone referred to is the crystal of antithought.

Open door to anvil room with key. Leave with half moon symbol only. Go in Witchwood to find Sanctuary for key to Locris vaults.

Witchwood

Inhabited by imps, malevolent rather than violent. They will blind you and take things left around. If blind use Heal and move to another clearing or merely use Light. (Blinding puts magic on you and the clearing while you are in it.) Destroy them with Warrior as they are a nuisance.

If message scroll tells you – "Batswing, witch leaf, frog leg will reveal" find "Bat", "herb", and "frog" in pool. Take to cauldron. Put them in. Take wand that floats out.

Go next door and use wand to move flagstone. Take elf, gem and spell. Give elf gem and receive other half of moon key. Construct key by putting pieces together. Take full moon.

Deactivate magic sword with wand and take. Cut down sapling to make magic broom.

Sweep leaves to find hedgehog (sword) and large stone and message – "Full moon reveals take it with steel", ie, use moon on stone but do not go without the moon or the sword.

Before you go move other flagstone in woods for Light spell. Proceed to the Sanctuary.

Tony Reedie

To zap or not to zap

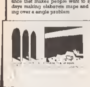
Graham Taylor chronicles the ever narrowing gap between arcade and adventure games.

Actually arcade adventures are less a matter of the welding together of the two concepts – arcade games and adventure games – than the inevitable result of more computer memory, and an inevitable move towards complexity as those who play games become ever more sophisticated. Nevertheless, the way arcade adventures have developed is interesting both in its history and in what it implies for the future of computer games in particular

Once upon a time there were arcade games – which simply meant games derived, adapted, licensed or stolen from those in the arcades. They were defined by the skills demanded – shooting and dodging and the fact that playing them through from beginning to end, from first screen to last, took around three minutes

Adventure games meant text adventures, closely derived from the Crowther and Woods mainframe original. Fantastic landscapes were described you moved around the world from location to location finding objects and solving problems which revolved around finding and using the right objects in the right way

Communication was via simple typed instructions along the lines of *Go North, Eat dog*. The skills demanded were a mixture of logical (sometimes lateral) thinking and the kind of mad perseverance that makes people want to spend days making elaborate maps and musing over a single problem



The Hobbit

The two strands developed separately for a while, though both developments were fuelled by the growing general interest in computers and the different way they were used in the home from the way they were either in the office (where most people got their first taste of adventures by sneakily accessing the company mainframe) or in the disguised form of arcade machines (where nobody in their right mind would want to spend hours on end playing one game and anyway the manufacturers didn't want people hogging the machines for 20p)

In the home there were the right circumstances for spending a long time over games and the memory requirements for ever longer games.

What happened to adventures is that, a) they got more complicated, with ever more sophisticated language analysis and, b) to the chagrin of some, they got graphics. The latter move made them more attractive to the general computer owners who needed their imaginations fired by more than mere text alone and wanted to feel that some use was being made of the increasing powerful graphics facilities of their micros

As clear an example of this as anything is Melbourne House's *The Hobbit*, released soon after the launch of the Spectrum. It made use of the (then) massive 48K memory to provide extremely detailed illustrations of locations and very sophisticated language analysis. The game was massively successful and sold to people who had never previously played an adventure before

Arcade games developed differently. Left, down, up, right, zap remained (and to some extent remains) the key to all games. Extra memory meant, however, more and more screens of action and, gradually, greater variety of screens.

Where as to begin with, all that changed from level to level was the type and a behaviour of the aliens, soon scenes changed more dramatically. A space battle would be followed by a land battle, backgrounds developed from static featureless backdrops to fully detailed landscapes, sometimes they changed as you moved through them. An early example were the road race games like *Pole Position* where you drove across landscape which 'moved past' you and featured streets, desert highways, mountains and seas.

Eventually even the skills arcade games required started to change. In *Manic Miner* the business of dodging things was no longer a matter of pure reaction. To complete the game you had to reason your way through each obstacle working out exactly where your little man needed to stand and when he needed to jump. It's fair to say that *Manic Miner* featured the visual equivalent of the verbal problems of adventure games

Once it was discovered that arcade games could consist of puzzles, problems and other situations requiring considered responses the barrier between the arcade game and the adventure game started to tumble

From the adventure game with graphics developed (often unsuccessfully it must be admitted) adventures with animated graphics. *Valhalla* was one of the more interesting examples mixing the standard kinds of text input with real time events on screen, so that typing *Get axe* made a character on screen move to and then pick up the axe.

The influence of wargames operated evenly on both sides, adding wargaming playing styles and skills both to adventure games and arcade games although that distinction was looking less and less useful. *Lords of Midnight*, for example, featured graphics at every location of a highly detailed kind and could be played both as kind of adventure or as a strategic wargame. It also proved that one could have all the feel, fantasy and flexibility of an adventure without typed input. Main options were single keypresses and where necessary a menu presented possible sub-divisions within that command. Once you have something that could be regarded as an

Lords of Midnight

adventure that featured continuous graphics but didn't require text input, the distinction between arcade games and adventures was broken.

Obviously companies still produced games that could be most properly termed arcade and, more especially, there remains a strong core of adventure purists who like their games unsullied by graphics of even the plainest sort. But, these examples aside, once games with moving graphics become ever more complicated and adventures appeared with animated graphics and single keypress commands, computer games changed, forever

At the moment the situation with arcade adventures is very fluid, various permutations on themes of input procedure, degree and form of animation and game intelligence have been attempted.

Graphics, particularly on the new range of machines, have reached a detail beyond that of conventional TV images and with powerful processors and graphics blitters may be moved around almost as smoothly. What do you get when the powerful graphics meet a complex command system and subtle plot? More than an arcade adventure you get a computer movie and, and things become really interesting . . .

Tony Bridge's Adventure Corner

Science and magic

We've been so busy lately, tying up the old year and looking forward to the new, as well as taking a first look at the blockbusting *Lord of The Rings*, that much of our usual business has been set aside. But of course, adventures have been coming in steadily all the time and now it's time to discuss a couple of them.

One game that has been around for some while now is *Souls of Darkon* from Taskset. It's well worth a look, and well worth grabbing a copy in the shops if you can find one now that Taskset has ceased trading. *Souls of Darkon* puts you, a bionic warrior, on the seemingly pleasant planet of Megron in order to release it from the power of (gasp!) Darkron. Long ago in Megron's history the grand council, besotted with their power, dabbled for too long in the esoteric ways of science and magic, and eventually released the force of evil, alias Darkon, and it is down to you, poor snivelling bionic fool, to save Megron's cowering population from its deserved fate.

The presentation of *Darkon* is good, the cassette inlay displaying a well air-brushed synopsis of the hazards awaiting, and the loading screen does its best to emulate this picture (almost succeeds, too!). The layout of the program is very interesting. The location descriptions are displayed at the top of the screen – unusually, there is no input cursor on the screen, and indeed, the instructions don't mention this at all nor how the adventurer should communicate with the computer. Pressing a key, though, gets a response, and you'll soon find yourself typing away, though rather slowly – the keyboard response is rather slow, and you'll miss plenty of letters until you get used to the speed which the program requires. Only one line of text is recognised (some 30 characters), and I managed to crash the program every time, trying to input more than this, which I feel is a major disadvantage.

These limitations are unfortunate, for *Souls of Darkon* is a great adventure. The character set is redesigned, with descenders slanting to the left at 45 degrees, this being reflected in the predominant slant of the location pictures – a convention that was the vogue for music record covers three or four years ago. The pictures are drawn instantaneously in a green wash, very attractive.

I find the input restriction rather hard to come to terms with, which is unfortunate, as the locations are descriptive, and there is a lot of atmosphere in the game. Magic and technology seem to have equal importance in the world of Megron, and it is obviously important to be proficient in both in order to get anywhere. A list of verbs recognised by the program can be asked for, and there is a particularly interesting response in *Legend*: this gives you a brief resume of some ancient legend associated with the location, and thus may give you some ideas as to how to proceed.

Apart from this, *Look* and *Examine* should be used pretty often. The first few locations are easily explored as long as you remember that a tree can be climbed (and there is a fountain that has refused to give up what is obviously an important clue), but you will eventually become stuck at an unpassable location. Here is where you'll need all the magic and subtlety at your command. Before you get to this point, however, you'll find plenty of objects to pick up, plenty of evocative locations to explore as well as other characters (though they don't seem to respond to questioning – yet) and the sinister presence above you of Darkon's minions. All is not as it seems, and the pictures and descriptions add up to convey a nice sense of mystery throughout the game.

Overall, an attractive adventure: my reservations as to its robustness can be regarded as mere warnings, as I think *Souls of Darkon* will turn out to be a very taxing and rewarding game. Despite Taskset's demise, it should still be around, and maybe another company will step in to buy up stocks.

Another very well-produced game comes from Activision. Not usually known for their text adventures, this company has recently released an example written by Interplay Productions, adapted by Solstone Ltd, called *Mindshadow*. The first block of data to be loaded purports to teach you 'the basics of how to be a first rate adventurer'. A nine-page 'living' tutorial (on-screen, that is) leads to a mini-adventure – it even includes some graphics. The program leads you through all the usual tricks of the trade and is thus invaluable to the novice, and along the way introduces you to the friendly Condor (a raffish-looking cad!), who follows you around the main adventure, and from whom you may ask advice (*Help, Help me, Condor*). The main adventure can then be loaded, and it's a beauty. Every location is illustrated in that particularly American way, with lots of shading, and very quickly drawn.



Mindshadow from Activision

The responses are excellent, the authors seem to have thought of almost everything that the player might think of typing and anticipated most of the obvious and not so obvious brainwaves – try swimming from the opening location of the beach, getting the monkeys or listening to the shell you'll find lying around (trying to climb down the cliff, though, meets with *You can't climb the Down!*). Descriptions are fairly atmospheric, though sometimes quite terse (and occasionally mis-spelt, as in the very first location, the beach).

Mindshadow is in two parts, the second of which needs data from the completed first part to play – again, it's attractive, fairly easy to explore and get objects, and the puzzles are diverting though not too hard. The experienced adventurer will find much to enjoy here, and, if you are a beginner, you should count yourself lucky to have found such a good game to start with.

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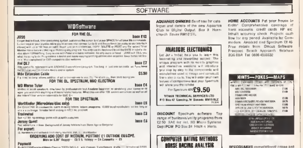
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3	(5)	Finders Keepers	(Mastertronic)	£1.99
4	(9)	Computer Hits (10)	(Beau Jolly)	£9.95
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6	(1)	Yie Ar Kung Fu	(Imagine)	£7.95
7	(6)	Soul of a Robot	(Mastertronic)	£1.99
8	(8)	Caves Of Doom	(Mastertronic)	£1.99
9	(-)	Hypersports	(Imagine)	£9.95
10	(-)	Tornado Low Level	(Vortex)	£7.95

Atari

1	(-)	Chimera	(Firebird)	£3.95
2	(2)	Mercenary	(Novagen)	£9.95
3	(5)	Action Biker	(Mastertronic)	£1.99
4	(1)	Goonies	(US Gold)	£9.95
5	(7)	Electra Glide	(Activision)	£9.95
6	(10)	Smash Hits 4	(English)	£9.95
7	(3)	Spy Hunter	(US Gold)	£9.95
8	(-)	King of the Ring	(Gremlin Graphics)	£9.95
9	(8)	Koronis Rift	(Activision)	£9.95
10	(6)	Fighter Pilot	(Digital Integration)	£9.95

BBC

1	(1)	Yie Ar Kung Fu	(Imagine)	£8.95
2	(2)	Way of the Exploding Fist	(Melbourne)	£9.95
3	(4)	Strike Force Harrier	(Mirrorsoft)	£9.95
4	(9)	Repton 2	(Superior)	£9.95
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8	(6)	Citadel	(Lothlorien)	£9.95
9	(-)	Computer Hits (10)	(Beau Jolly)	£9.95
10	(-)	Match Day	(Ocean)	£8.95

Commodore 64

1	(-)	Bounder	(Gremlin Graphics)	£9.95
2	(3)	Koronis Rift	(Activision)	£9.99
3	(1)	Commando	(Elite)	£9.95
4	(2)	Rambo	(Ocean)	£8.95
5	(6)	Last V8	(Mastertronic)	£2.99
6	(4)	Winter Games	(US Gold)	£9.95
7	(10)	Kik Start	(Mastertronic)	£1.99
8	(-)	Action Biker	(Mastertronic)	£1.99
9	(7)	Little Computer People	(Activision)	£9.99
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Spectrum

1	(2)	Winter Games	(US Gold)	£7.95
2	(1)	Commando	(Elite)	£7.95
3	(2)	Rambo	(Ocean)	£7.95
4	(4)	Yie Ar Kung Fu	(Imagine)	£7.95
5	(5)	Spellbound	(Mastertronic)	£2.99
6	(6)	Saboteur	(Durell)	£8.95
7	(-)	Tomahawk	(Digital Integration)	£9.95
8	(8)	Daley Thompsons Super Test	(Ocean)	£6.95
9	(7)	Elite	(Firebird)	£14.95
10	(-)	Formula One Simulation	(Mastertronic)	£1.99

All figures compiled by Gallup/Microscope

Top Twenty

1	(2)	Yie Ar Kung Fu *(Various)*	Imagine
2	(1)	Commando *(Spectrum/C64)*	Elite
3	(4)	Winter Games *(Spectrum/C64/Amstrad)*	US Gold
4	(3)	Rambo *(Spectrum/C64)*	Ocean
5	(6)	Formula One Simulator *(Various)*	Mastertronic
6	(10)	BMX Racers *(Spectrum/C64/C16)*	Mastertronic
7	(5)	They Sold A Million *(Spectrum/C64/Amstrad)*	Hit Squad
8	(9)	Computer Hits 10 *(Various)*	Beau Jolly
9	(13)	Rockman *(Spectrum/C64/C16/Vic 20)*	Mastertronic
10	(11)	Action Biker *(Spectrum/C64/Atari/C16)*	Mastertronic
11	(8)	Finders Keepers *(Various)*	Mastertronic
12	(-)	Bounder *(C64)*	Gremlin Graphics
13	(-)	Tutti Frutti *(Atari/C16)*	Mastertronic
14	(12)	Spellbound *(Spectrum/Amstrad)*	Mastertronic
15	(14)	Koronis Rift *(C64/Atari)*	Activision
16	(13)	Elite *(Spectrum/C64/BBC)*	Acornsoft/Firebird
17	(-)	Hypersports *(Various)*	Imagine
18	(7)	Way Of The Exploding Fist *(Various)*	Melbourne House
19	(15)	Now Games 2 *(Spectrum/C64)*	Virgin
20	(17)	Transformers *(Spectrum/C64/Amstrad)*	Ocean

Figures compiled by Gallup/Microscope

Readers' Chart No 59

1	(7)	They Sold a Million *(C64/Spectrum/Amstrad)*	Hit Squad
2	(1)	Elite *(Spectrum/C64/BBC)*	Acornsoft/Firebird
3	(3)	Winter Games *(Spectrum/C64)*	Epyx/US Gold
4	(2)	Commando *(Spectrum/C64)*	Elite
5	(4)	Lord of the Rings *(Spectrum/Amstrad)*	Melbourne House
6	(5)	Yie Ar Kung Fu *(Spectrum/C64/Amstrad/MSX/BBC)*	Imagine
7	(8)	Way of the Exploding Fist *(Various)*	Melbourne House
8	(-)	Spellbound *(Spectrum/C64)*	Mastertronic
9	(-)	Computer Hits 10 *(Various)*	Beau Jolly
10	(-)	Rambo *(Spectrum/C64)*	Ocean

Winning Phrase No 59: "Rambo! Ocean's minder?" from P Sarbert of Harrogate in Yorks. Most of you enterprisingly took your letters from the Top Twenty due to the absence of a chart two weeks ago

Now voting on week 61 – £25 to win

Each week *Popular* is compiling its own special software top ten chart – compiled by YOU.

And each week we will send £25 to the person who sends in, with their chart votes, the most original (witty, neat or clever – but never rude) phrase or sentence made up from the letters (you don't have to use them all) in the titles of the top three programs in this week's Readers' Chart, published above.

You can still vote in the chart without making up a slogan – but you won't be in with a chance of winning the prize.

All you have to do is fill in the form below (or copy it out if you don't want to damage your magazine) and send it off to Top 10, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP.

Voting for Week 61 closes at 2pm on Wednesday February 5, 1986. Entries received after that time will not be eligible for inclusion in that week's voting. The judges decision is final. Only one entry per individual per week will be allowed.

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My top 3: Voting Week 61

1. ....
2. ....
3. ....

My phrase is: ....

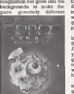
New Releases

SIMPLE

Space Doubt is pretty much your standard, slightly wacky blast away, but it has enough nice touches to lift it above the run of the mill The general plot is simple enough you are a little galactic mechanic charged with the repair of a cargo ship riddled with holes through which emerge a stream of nasties

The ship is displayed in a sort of simple 3D with doors leading to new ship sections, extending not only left and right but also back and forth. Your little spaceman must first collect a space hole repairer and gun with which to blast the meanies That's it really, repair holes, kill things

What redeems the game is the unusual character of the graphics which have a solid look mixed with a cheerful cartoon like quality Some imagination has gone into the backgrounds to make the game genuinely different



from dozens of superficially similar offerings That said, I think it's too expensive at £8 95 a budget or semi budget price would have been more appropriate

Program *Space Doubt*
Price *£8 95*
Micro *Commodore 64*
Supplier *CRL*
9 Kings Yard
Carpenter's Road
London
E15 2HD

SPACE DOTS

Macrocosmica is the latest release under the umbrella of Amstrad's own Amsoft Gold label, the idea being that Gold games are a few cuts above the usual run of the mill and thus justify a marginally higher price

Macrocosmica is, sort of, *Elite* without the hi res animated vector graphics or, if you like, a souped-up version of *Star Trek* In short it is a trading game with a space plot with a few nominal space graphics as you travel from planet to planet.

Central to the program is buying and selling of goods through the universe Like *Elite* it has a scanner to tell you what's in the vicinity and give you details like how tough the customs are and what sort of economy each has

There are pirates who will steal your cargo and who also give rise to one of the few animated sections of the game – a very simple left right, up down blast away as you hurtle through a mass of dots that represents space

It's nicely presented, but there really isn't enough to retain the interest As a trading game it lacks humour and the graphics are not enough to justify the price tag

Program *Macrocosmica*
Price *£9 95*
Micro *Amstrad*
Supplier *Amsoft*
Brentwood House
Brentwood
Essex
CM14 4EF

Pick of the week

DESERT BATTLE

What has put many people, myself included, off computer wargaming is, I think, the lack of visual interest in many of the early offerings It may be superficial to the fundamental mechanics of the game but a pleasing screen display can do a lot to win over the not yet converted

In this respect *Arnhem* from CCS was very successful, it had all the classic wargame ingredients but featured a scrolling map with neat symbols for the different forces, which were simply animated to show what was going on.

So with *Desert Rats*, the follow-up to *Arnhem* This uses the same professional graphic touches in a setting of the North Africa Campaign It is a vast desert battle played over Libya and Egypt and divided into a number of separate sections which may be played either singly or in sequence to recreate the entire battle

Although the overall objective is, simply, to destroy the enemy's forces within each section, there are specific objectives Part 1, for example, concerns the defence of Tobruk – the British must clear the routes to the city, the Axis powers must prevent this within a set number of moves

Intelligent use of menus means that the options you are offered depend on the current situation – a force not on a road will not get a Travel choice, which lets you move (down a clear section of road) at four times the usual speed. When moves require several turns to complete, you will not be required to reconfirm the information each time

A most impressive package, and like *Arnhem* before it a good place for the as yet uncommitted to wargaming to begin.

Program *Desert Rats*
Price *£9 95*
Micro *Spectrum*
Supplier *Cases Computer Simulations*
14 Langton Way
London
SE3 7TL

This Week

Program	Type	Micro	Price	Supplier
Spellbound	Ad	Amstrad	£2.99	Mastertronic
Thiok!	S	Amstrad	£8 95	Ariolasoft
The Music System	Ut	Amstrad	£15 99	Rainbird
Mediator	Arc	Atari	£12 95	English
One Man and Droid	Arc	Atari	£1 99	Mastertronic
K Spread	Ut	Atari ST	£49 99	Kuma
Philon Fast Basic M	Ut	Atari ST	£96 95	Kuma
Fleet Street Editor	Ut	BBC	£39 95	Mirrorsoft
Space Doubt	Ad	Commodore 64	£8 95	CRL
The Causes of Chaos	Ad	Commodore 64	£8.95	CRL
Blade Runner	Arc	Commodore 64	£8 95	CRL
Dragon Skulle	Arc	Commodore 64	£9 95	Ultimate
Phantoms of Asteroid	Arc	Commodore 64	£1 99	Mastertronic
Rock n Wrestle	S	Commodore 64	£9 95	Melbourne House
Formula One Simulat	Arc	MSX	£5 00	Anglosoft
Sprite das - Font	Ut	MSX	£6 00	Anglosoft
Spacehunter	Arc	Spectrum	£1 99	Mastertronic
The Devils Crown	Arc	Spectrum	£1 99	Mastertronic

Key Ad – adventure S – strategy simulation
Arc – arcade Ut – Utility Ed – education

New Releases

MAGICAL

Dragon Skulle is the latest Ultimate game for the Commodore and the first from the company to be released under the auspices of US Gold. *Dragon Skulle* is yet more adventures of Sir Arthur Pendragon, noted medium-rare stuck insect and adventurer.

The game is very much in the style of *Entombed*. Where that game featured a whip and a lamp among the objects to be located, this has a spade, magic cloak and magical cab which dig, protect from baddies and destroy things respectively. Settings are also similar, the search for the evil Skull of Souls takes place in rocky caverns and steaming pits, and there are the same sort of narrow pathways and strange obelisks in many of the locations.

The graphics are the same as previous Arthur Pendragon adventures, those sort of semi teletext sprites that mean a blocky look to shapes. Although colourful and used effectively, it is a graphics style that is starting to seem ever more clumsy and dated. Other companies manage to drag finely detailed animated shapes from the machine.

All that said, there is plenty to do in *Dragon Skulle*. A few simple puzzles lead you gently into the game and keep your interest up and doubtless there is plenty more to be unravelled in later sections of the game. If you have enjoyed previous incarnations of Arthur Pendragon, there will be no major disappointments here, but I don't think it is something Ultimate can pursue much further without becoming very repetitive and outdated.

Program *Dragon Skulle*
Price *£9.95*
Micro *Commodore 64*
Supplier *US Gold, Unit 10, Parkway Industrial Estate, Heneage Street, Birmingham*

LEFT HOOK

Rock 'n' Wrestle is the follow-up to the near legendary *Way Of The Exploding Fist*. A follow up in a loose sense, *Rock 'n' Wrestle* is combat of a far less civilised sort, ie, wrestling.

The point of comparison with *Fist* is partly technical – the use of large animated graphics – and partly in game play – it's still a matter of different joystick movements for different fighting moves. It has to be said that with *Rock n Wrestle*, Melbourne House have set themselves a considerably more difficult task than in *Fist*. The most obvious reason for this being the fact that it occurs in 3D, the two fighters move not only left and right, but back and forth from foreground to background as well. In addition, the kind of wrestling moves the game features require much more extensive animation.

There are over 25 possible moves in the game, all achieved through single joystick manipulations. They are divided into several sections, joystick, no fire button for moving around the ring; joystick with trigger pressed gives you several 'softening up moves' – the use of knees, kicks and forearms to thump the energy out of your opponent. Joystick plus trigger and pressed forward is grab, a chance to pick up or otherwise take hold of your opponent. Once grabbed the joystick assumes a new series of functions depending on how your opponent is held, suffice to say that this is where jolly things like aeroplane spins and body slams come in.

There is some humour in the variety of opponents you meet, L.A. Bruce, for example, wears a little peaked leather cap and looks like a member of the Village-People: he looks to me more like San Francisco Bruce. You are Gorgeous Greg whose shock of blond hair suggests an excessive use of peroxide.

Clearly *Rock 'n' Wrestle* is a technical achievement, but it's less clear that it is a success. Melbourne House may have attempted a little too much. Whilst the graphics are large and fairly detailed, the animation is rather jerky. So far in playing the game I've felt that winning and losing is rather arbitrary.

The game has a rather boring sound track which gets irritating and the oohs and ows achieved so effectively on *Fist* are rather fussy and indistinct here, as is the digitised speech which counts you out. I think, that whilst certainly *Rock 'n' Wrestle* isn't a major disappointment, *Fist* fans should certainly try to play it first before buying.

Program *Rock 'n' Wrestle*
Price *£9.95*
Micro *Commodore 64*
Supplier *Melbourne House, Castle Yard House, Castle Yard, Richmond, Surrey, TW10 6TF*

This Week

Anglosoft, PO Box 60, Coventry, West Midlands, CV1 5SX 0203 611943 **Ariolasoft**, Suite 105/06 Asphalte House Palace Street London SW1E 5US **CRL**, CRL House, 9 Kings yard, Carpenter's Road London E15 2HD, 01 533 2918 **English**, Box 43, Manchester, M60 3AD 061 835 1358 **Kuma**, Kuma Computers 12 Horseshoe Park, Pangbourne RG8 7JW, 07357 4335 **Mastertronic**, Park Lorne 111 Park Road, London NW8 7JL, 01 402 3316 **Melbourne House**, 39 Milton Trading Estate, Abingdon, Oxon OX14 4TD, 0235 835001 **Mirrorsoft**, Mirror Group Holborn Circus, London EC1P 1DQ 01 353 0246 **Rainbird**, Wellington House, Upper St Martin's Lane London **Ultimate**, Ultimate Play the Game, Ashby-de-la-Zouch, Leicester LE6 5JV, 0530 411485



Commercial piracy

I am writing about software piracy; no, please don't fall asleep – I promise not to mention turbo loaders!

Much play is made in the micro press about commercial piracy being the bane of the software houses. However, very few of them do as much as they could to aid those who have the legal power to put the bad guys in jail, the Trading Standards Officers

The problem is that very little use is made of the methods of distinguishing originals from copies. By far the best method is the holographic sticker, as used on credit cards. But only one company that I know of, Elite, uses these.

This lack of identifiability means that when the TSOs find software that is of dubious background, even the software house may not be able to tell whether it is counterfeit! There is rarely anything more troublesome to copy than a colour inlay and the right coloured leader tape No problem for a budding bad guy with friends at a printworks.

Some smaller companies just can't afford to do anything. One TSO saw my copy of *Bored of the Rings* and thought it was a counterfeit. The reason – the cassette sleeve could have been photocopied (probably was), and the area inside the box where a company logo normally goes was blank

This, although undoubtedly cheaper, means that the proper boxes could probably be bought off the shelf (it's an excellent game though)

So, Beyond, Ultimate and the rest of you, start using holographic stickers and better labelled boxes, for everyone's sake.

Changing to methods of protection, in my quest as an Amstrad programmer for ever better protection, I discovered how to tell how fast a tape had been loaded in (for those who don't have Amstrads, its cassette system can operate at any speed from about 500-4000 baud, and automatically detects the loading speed) This enables my software to detect whether it has been loaded in at the original speed or whether the speed had been altered in the course of making a copy using a copier

Very useful indeed, except that it only works on the 464 So I phoned Amsoft's technical help to find out its counterpart on the 664 & 6128. They, helpfully, told me that this information didn't exist and thus implied that I couldn't know it. They said that if anything wasn't in the firmware manual, then nobody knew it, particularly not them.

So I wonder, since every programmer worth his fingers has a firmware manual, what's the point of having a technical help department?

They argued that the best way of protecting cassettes is sync bytes and if people couldn't copy these then they would use a tape to tape, and thus my system was of little merit This however ignores the point that there are copiers that will copy sync bytes, but still not beat my system. Therefore my system would force more people to make tape to tape copies

Presuming the existence of copiers that will copy anything (which includes the dreaded hackers), tape to tape copies are better for the industry because as they become copies of copies of copies their quality deteriorates until they cannot be successfully copied (particularly as by no means everyone has an Amstrad double-decker, most are still using a W H Smith recorder, a friend's Ferguson or equivalent, which is a notoriously unreliable method) Whereas copies saved from the computer by copier software are always perfect new recordings.

Michael Fox

Puzzle No 193

Simon Square discovered a curious thing the other day – his father's date of birth, written as figures was a perfect square. You see, his father was born on the third of August 1924, and when written as 3.8.1924 the number formed (381924) is the square of 618

Further investigation also revealed that the same remarkable feature also applied to the dates of birth of his mother, his younger sister (whose birthday fell in the same month as himself), his cousin Sam, and also his own date of birth.

Can you determine these amazing dates?

Solution to Puzzle 189

The Great Plague was in 1676, and the next date of importance is the year 2427

The program tests all dates commencing at the year 1000 to determine if they exhibit the required property Line 140 calculates the actual year, and line 150 calculates the value of the first digit to the first power plus the second digit to the second power, and so on. If the two are equal the date is printed. This process is continued until after the next highest date after 1985 has been determined when line 170 brings the execution of the program to a close

This reveals three dates, 1306 as stated in the question, 1676 which must be the date of the Great Plague and 2427 the next occurrence of such a date

```
100 FOR A=1 TO 9
110 FOR B=0 TO 9
120 FOR C=0 TO 9
130 FOR D=0 TO 9
140 LET YEAR=A*1000+B*100+C*10+D
150 LET X=A+B*B+C*C*C+D*D*D*D
160 IF YEAR=X THEN PRINT YEAR
170 IF YEAR=X AND YEAR>1985 THEN GOTO 300
180 NEXT D
190 NEXT C
200 NEXT B
210 NEXT A
300 END
```

Winner of puzzle No 189

The winner is S S Trundley of Newcastle-upon-Tyne, who will be receiving the sum of £10.

Rules

The closing date for puzzle 193 is Feb 38

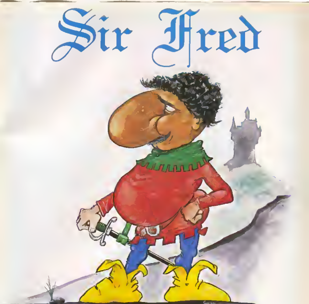
The Hackers

I hope this isn't one of those Apple lookalikes

BILL & BEN THE MICRO PEOPLE

Oh, you needn't worry on THAT score!





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